



MARINE MAMMAL COMMISSION

10 May 2010

Mr. P. Michael Payne, Chief
Permits, Conservation, and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910

Re: Permit Application No. 14118
(Becky Woodward, Ph.D., Woods Hole
Oceanographic Institution)

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit application with regard to the goals, policies, and requirements of the Marine Mammal Protection Act. The applicant is seeking authorization to take by harassment a variety of cetacean species during the development and testing of two methods of attaching tags using peduncle belts. Activities would be conducted over a five-year period.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- issue the permit but condition it to authorize the proposed study in at least three phases, as described in this letter;
- require the applicant to report the results of each phase of study for Service review before allowing the next phase to begin; and
- require the investigator to take steps to ensure that the activities to be conducted under this permit and those of other permit holders who might be carrying out research on the same species or in the same areas are coordinated to avoid unnecessarily duplicative research and unnecessary disturbance of animals.

RATIONALE

The applicant proposes to pursue multiple research objectives for numerous species of large and small cetaceans, including some listed under the Endangered Species Act. The applicant would investigate various aspects of their habitat use, diving patterns, physiology, and acoustic environment using a variety of instruments, including (1) satellite/GPS/depth tags, (2) medium-term acoustic recording tags, and (3) multi-sensor data recording tags. During the first year of the proposed study, the applicant would tag up to 10 humpback whales, 10 long-finned pilot whales, 10 short-finned pilot whales, and 10 false killer whales in the Atlantic Ocean and up to 10 long-finned pilot whales,

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10 short-finned pilot whales, 10 false killer whales, and 10 beluga whales (Bristol Bay stock) in the Pacific Ocean. If these efforts are successful, the applicant would expand her research to include additional species and increase the number of animals per species that could be tagged annually. In the third year of the project, the applicant proposes to apply her tagging method to North Atlantic right whales and beluga whales in Cook Inlet, Alaska.

The central issue of concern for this application pertains to the methods of tag attachment. Tag attachment has long posed a challenge for scientists who study cetaceans. All methods tried to date have drawbacks and most pose some degree of risk to the tagged animals. Developing a reliable tagging method that minimizes the risk would be a significant advancement, and the applicant's goals are commendable. She proposes to test two potentially non-invasive attachment methods involving use of a peduncle belt to which instruments would be attached or tethered. For three decades, the Fish and Wildlife Service has used a similar attachment method with manatees. If the applicant has not already done so, she may benefit from a discussion with Fish and Wildlife Service scientists regarding their experience with this approach.

Despite its successful use with manatees, this type of tag attachment may still pose some risk if deployed on large and small cetaceans. Several lines of evidence suggest a need for caution. First, whales are commonly observed with peduncle wounds and scars, most likely from entangling fishing gear or debris. Based on photographs, Kraus (1990) reported peduncle scars on 67 of 118 (57 percent) North Atlantic right whales, suggesting that the animals are vulnerable to entangling material. In effect, peduncle belts may cause chaffing and pressure leading to injury, may cause additional drag, and may increase the probability of ensnaring debris. Whether and to what extent these adverse effects occur is likely a function of multiple factors, such as the type, thickness, weight, drag, and position or alignment of the encircling material on the animal.

Experiments in the 1980s in which instruments were attached to pinnipeds provide a second line of evidence to suggest that material wrapped around a moving body part can lead to various problems. Those efforts were eventually abandoned because of increased drag and concerns about injuring the subject animals. Such concerns are exacerbated when the study animals are from endangered or threatened species, when their movement patterns make it difficult to monitor them to determine if injuries develop over time, or when their size or behavior makes it difficult to take remedial action if problems are detected. Unfortunately, one or more of these concerns apply to most cetacean species.

The applicant anticipates that the risks to subject animals from the attachment of peduncle belts are relatively low. Indeed, the purpose of the study is to develop a tag attachment method that poses little risk. However, as just noted, existing evidence is not sufficient to rule out unintended but potentially serious effects on tagged animals. For that reason, as the applicant tests her proposed approach, she should be able to (1) carefully monitor the animals fitted with peduncle belts to ensure that they do not develop serious problems and (2) remove the belts when such problems occur.

With those requirements in mind, the Commission believes this study would best be conducted in phases. In fact, the applicant proposes a phased approach, although her selection of

species does not appear to be conducive to meeting the requirements for monitoring and removing belts as needed. In cases such as this, where new methods with uncertain risks are being developed, scientists often use captive animals so that they can test and adapt their methods in a controlled situation. Captive animals are imperfect models for these peduncle belts because their behavior and environment differ from those of their wild counterparts. Thus, the utility of testing these methods in a captive setting is debatable. Another alternative would be to use trained animals that are free to range out into open water, such as those that have been trained by the Navy. Such animals would be useful for testing the effects of a peduncle belt because they have access to natural settings and their swimming patterns and behavior should be more natural, they can be monitored closely, and the belts can be removed from them temporarily for inspection or indefinitely if a problem develops. In this phase of the study, the applicant may not need to include release mechanisms on belts because the animals can be handled. However, studies with these animals provide a useful opportunity to test release mechanisms in a controlled setting to ensure that they are reliable.

After such initial testing, the applicant could begin a second phase of study by using peduncle belts on animals that are in a natural setting and can be monitored carefully, but that are not trained or cannot be easily handled. Because this approach is experimental and has potentially significant effects, it makes sense to avoid animals that likely are females. For cetaceans, the best general indicator that an animal is a female is association with a calf. However, morphological features of some species allow distinction in the field, and for well-known populations (e.g., some humpback whale populations), the applicant may be able to select known individuals for study. In addition, during this phase of study, the approach must include reliable mechanisms for releasing a belt if problems are detected. Here it would make sense to include an electronic release mechanism that could be activated from a vessel or aircraft, together with corrosive links that would ensure the belt is released if the electronic mechanism fails. The use of at least two systems on each subject animal provides greater assurance that unintended problems can be remedied.

Finally, the application requests authorization to use this approach with North Atlantic right whales and Cook Inlet beluga whales. However, the populations from which these whales could be taken are highly endangered and vulnerable to any new sources of injury or mortality. As a final safeguard, the Commission believes that the Service should allow use of these mechanisms on threatened or endangered species only after the initial phases of this study have been conducted and the devices proven effective and benign.

With the above caveats and concerns in mind, the Marine Mammal Commission recommends that the National Marine Fisheries Service issue the permit but condition it to authorize the proposed study in at least three phases. The first phase would be to test the peduncle belt approach with animals that can be monitored closely and handled so that problems can be detected and remedied. The Service should require that the applicant at least assess the opportunity for using trained animals or animals in wild populations that can be followed closely. Under the right conditions, captive animals might also provide useful initial subjects. The second phase would be to use animals that can be monitored carefully but not easily handled and to include electronic and corrosive release systems so that belts can be released from animals if they are causing problems. The third phase would be to allow use with endangered and threatened species if the approach has

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proven effective and benign in the first two phases of study. The Marine Mammal Commission also recommends that the National Marine Fisheries Service require the applicant to report the results of each phase of study for Service review before allowing the next phase to begin. Finally, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the investigator to take steps to ensure that the activities to be conducted under this permit and those of other permit holders who might be carrying out research on the same species or in the same areas are coordinated to avoid unnecessarily duplicative research and unnecessary disturbance of animals.

Please contact me if you have questions concerning these recommendations and comments.

Sincerely,



Timothy J. Ragen, Ph.D.
Executive Director

Literature Cited

Kraus, S. D. 1990. Rates and potential causes of mortality in North Atlantic right whales (*Eubalaena glacialis*). *Marine Mammal Science* 6(4):278–291.